Amendments To Claims

This listing of claims will replace all prior versions and listings of claims in the subject patent application.

Listing of Claims

Claim 1 (currently amended). An interconnect for an electrically driven solid electrolyte oxygen separation device comprising a composition of matter represented by the general formula:

$$Ln_xCa_{x'}A_{x''}Mn_yB_{y'}O_{3-\delta}$$

wherein

Ln is La;

A is Sr;

B is Co;

~~0.3 < x < 0.5; 0.5 < x' < 0.7; 0 < x" < 0.2;~~

~~0.9 < y <1.05; and 0 < y' < 0.1;~~

$0.3 \leq x \leq 0.5$; $0.5 \leq x' \leq 0.7$; $0 \leq x'' \leq 0.2$;

$0.9 < y < 1.05$; and $0 \leq y' \leq 0.1$;

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provided that $x + x' + x'' = 1$ and $1.05 > y + y' \geq 1.02$

wherein δ is a number which renders the composition of matter charge neutral.

Claim 2 (previously presented): The electrochemical solid-state device of claim 13 wherein the at least one interconnect consisting of a single layer comprises a composition of matter wherein Ln is La.

Claim 3 (previously presented): The electrochemical solid-state device of claim 13 wherein the at least one interconnect consisting of a single layer comprises a composition of matter wherein A is Sr.

Claim 4 (previously presented): The electrochemical solid-state device of claim 13 wherein the at least one interconnect consisting of a single layer comprises a composition of matter wherein B is Co.

Claim 5 (previously presented): The electrochemical solid-state device of claim 13 wherein the at least one interconnect consisting of a single layer comprises a composition of matter wherein $0.3 \leq x \leq 0.7$ and $0.3 \leq x' \leq 0.7$.

Claim 6 (previously presented): The electrochemical solid-state device of claim 13 wherein the at least one interconnect consisting of a single layer comprises a composition of matter wherein x" is 0.

Claim 7 (previously presented): The electrochemical solid-state device of claim 13 wherein the at least one interconnect consisting of a single layer comprises a composition of matter wherein $0.9 < y < 1.2$ and $0 \leq y' \leq 0.1$.

Claim 8 (previously presented): The electrochemical solid-state device of claim 13 wherein the at least one interconnect consisting of a single layer comprises a composition of matter wherein y' is 0.

Claim 9 (canceled).

Claim 10 (canceled).

Claim 11 (previously presented): The electrochemical solid-state device of claim 15 wherein the at least one interconnect consisting of a single layer comprises a composition of matter wherein $0.3 \leq x \leq 0.7$.

Claim 12 (canceled).

Claim 13 (previously presented): An electrochemical solid-state device comprising at least two electrochemical cells which are electrically connected in series by one or more interconnects wherein at least one interconnect consists of a single layer comprising a composition of matter represented by the formula

$$Ln_xCa_{x'}A_{x''}Mn_yB_{y'}O_{3-\delta}$$

wherein

Ln is selected from the group consisting of La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, and Lu;

A is selected from the group consisting of Sr, Ba and Y;

B is selected from the group consisting of Cu, Co, Cr, Fe, Ni, Zn, Nb, Zr, V, Ta, Ti, Al, Mg, and Ga;

$0.1 \leq x \leq 0.9$; $0.1 \leq x' \leq 0.9$; $0 \leq x'' \leq 0.5$;

$0.5 < y < 1.2$; and $0 \leq y' \leq 0.5$;

provided that $x + x' + x'' = 1$ and $1.2 > y + y' > 1.0$; and

wherein δ is a number which renders the composition of matter charge neutral.

Claim 14 (original): The electrochemical solid-state device of claim 13 wherein Ln is La, A is Sr, B is Co, $0.3 \leq x \leq 0.5$; $0.5 \leq x' \leq 0.7$; $0 \leq x'' \leq 0.2$; $0.9 < y < 1.05$; and $0 \leq y' \leq 0.1$; provided that $x + x' + x'' = 1$ and $1.05 > y + y' \geq 1.02$.

Claim 15 (previously amended): An electrochemical solid-state device comprising at least two electrochemical cells which are electrically connected in series by one or more interconnects wherein at least one interconnect consists of a single layer comprising a composition of matter represented by the formula:

$$Ln_xCa_{x'}Mn_yO_{3-\delta}$$

wherein

Ln is selected from the group consisting of La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, and Lu;

$0.1 \leq x \leq 0.9$; $0.1 \leq x' \leq 0.9$;

$1.0 < y < 1.2$

provided that $x + x' = 1$; and

wherein δ is a number which renders the composition of matter charge neutral.

Claim 16 (original): The electrochemical solid-state device of Claim 15 wherein Ln is La, $0.3 \leq x \leq 0.5$ and $1.0 < y < 1.05$.